

What is that horse doing?

The need for a Working Horse Ethogram



Marc Pierard

Katholieke Universiteit
Leuven, Belgium

Behaviour is omnipresent

- Behaviour used by researchers, veterinarians, riders, trainers, judges, stewards, welfare inspectors, farriers, grooms, breeders, ...
- limited standardisation of behaviour measurements and definitions
- Very frequent misunderstandings by lack of common vocabulary



Behaviour: what is it?

- “actions and reactions of whole organisms”
(Martin & Bateson, Measuring Behaviour, 3rd edition)
- “the study of behavior encompasses all of the movements and sensations by which animals and men mediate their relationships with their external environments – physical, biotic and social.”
(Alexander 1975 in Lehner, Handbook of ethological methods,



Ethogram

- “a catalogue of descriptions of the discrete, species-typical behaviour patterns that form the basic behavioural repertoire of the species” (Martin and Bateson)
- “a set of comprehensive descriptions of the characteristic behavior patterns of a species” (Brown, 1975 in Lehner 2nd edition)



Behaviour units



- Fundamental types (Hinde, 1970)
 - Description by spatio-temporal patterns of muscular contraction, including patterns of limb and body movements
 - Description by consequence
- Distinctive descriptions (Martin & Bateson)
 - Structure: appearance, physical form or temporal patterning of the behaviour; behaviour described in terms of subject's posture and movements
 - Consequence: the effects of the subject's behaviour on the environment, on other individuals or on itself; behaviour may be described without reference to how the effects were achieved

Different types of ethograms

- Continuum of detail, structural level and interpretation: adapted to study
- Practical distinction
 - **Descriptive ethogram**: focus on purely describing body movements, little or no interpretation
 - **Functional ethogram**: attributing function to behaviour units, higher level of interpretation



‘What’ before ‘why’ !



“Classical ethology had as one of its aims the preparation of ethograms for each species investigated. That is, the aim was to provide a detailed inventory of the `behaviour patterns' of each species. The methodological principle involved was that one needs to know in detail what sorts of things animals do before one can begin any serious attempt to explain their behaviour.”
(A.C. Purton 1978)

Working horse ethogram

- Workshop at ISES conference in Sydney in 2009
- Workshop on methodology at ISES conference in Edinburgh 2012
- Objective, descriptive definitions for behaviours of horses during interactions with humans



Reliability

- 2 distinct issues:
 - Intra-observer
 - Inter-observer
- Balance between rigorous definitions and individual variability
- Need for clear boundaries between behaviours



Current situation

- Equid ethogram, S. McDonnell 2003
- 'Horse Behavior, second edition', G. Waring, 2003
- 'Pferde unter sich; Verhalten und Verständigung; gezeichnet und erklärt', A. Glatthaar 2012
- 'Defining terms and processes associated with equitation' McGreevy et al. 2005
- Many studies on horse behaviour with different ethograms



Ethnographic definitions

- Many differences in type of behaviour included, definition, interpretation level, method of scoring
- Variations on a theme: '*adapted from ...*', '*based on ...*'
- Context-specific interpretation
- Reliability often not tested



Advantages WHE



- Objective, reliable definitions of behaviour patterns of horses while interacting with humans
- Compatibility and comparability of studies, allowing meta-analyses
- Minimizing misunderstandings and emotional responses
- widely accepted vocabulary to improve communication between researchers, riders, trainers, breeders, equestrian officials, welfare inspectors, ...
- Basis for quantitative analyses and for research into causation, functionality and ontogeny of horse behaviour

Flexibility

- Common starting point: individual researcher decides on ethogram
 - Relevant behaviours
 - Lumping categories
 - Splitting categories
- Living document: regular updates to incorporate new results
 - Adding detail to description
 - Subdividing behaviours where necessary



Partial ethogram in previous study

<i>Behaviour</i>	<i>Definition</i>
Head toss	Head and neck show one quick extension followed by a flexion in the median plane
Head shaking	Multiple extensions and flexions of the head and neck
Head high	Overextension of the neck of the horse with the neck 45° or more above the dorsal plane of the horse
Behind the vertical / behind the bit	Flexion of the head of the horse with the nasal plane caudally to the transversal plane at the poll
Kicking at rider/whip	Horse moves at least one anterior or posterior limb in the direction of the rider or the whip, with or without contact, with a range of motion that exceeds normal movement pattern

Tail swishing	One or more movements of the tail at more than 45° compared to resting position, movement in any direction (dorsal, ventral, lateral and intermediate directions)
Bucking	A movement of the horse in which the 2 posterior limbs leave the ground simultaneously with the weight shifted to the anterior limbs, outside the normal movement pattern and without the rider giving a signal to do so
Rearing	A movement of the horse that isn't a response to a particular signal by the rider in which both anterior limbs leave the ground simultaneously without a forward movement of the entire body of the horse, shifting the weight to the posterior limbs
Shying	A lateral movement of the anterior and/or posterior limbs without a signal from the rider to do so



Way forward

- Literature review
- First draft
- Comments and reliability testing by panel of scientists and practitioners
- Second draft
- Wider distribution for feedback
- Version for public use
- Distribution and promotion of WHE



Ultimate goal

- Widely accepted and used ‘dictionary’
- Contribute to more objective terminology
- Increase implementation of evidence based practices
 - Improve horse welfare
 - Increase safety of working with horses
 - Maximise performance



Thank you for your attention!



Questions?